Securin and Breast Cancer

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Some of the most essential steps of cell cycle progression occur during metaphase-anaphase transition. In this event, genetic stability is controlled through a complex signalling network aiming at maintaining chromosomal cohesion by blocking mitosis and securing the mitotic spindle until sister chromatid segregation is complete. Disruption of this intrigue interaction results in incorrect DNA content and structure predicting particularly aggressive behaviour of malignant disease. Also in breast cancer, deregulated proliferation has been recognized among the most important factors predicting the clinical outcome of the disease.

The study focuses on a set of genes and their proteins acting in metaphase-anaphase transition ie. securin, (Pttg-1), separase, Cdc20, Cdc27, Mad2, cohesin, and APC/C. We are conducting translational research to investigate the role and regulation of these proteins in human breast cancer, and in prognostication of disease outcome. In this research we apply methods of histology, immunohistochemistry, cell biology and molecular pathology. The aim of our study is to identify patient subgroups, predict the clinical outcome and understand the behaviour of the disease with the help of the studied cell cycle regulators, especially among the challenging group of aggressive triple-negative breast cancers.

Selected publications


Personnel

PhD Students
Henna Karra, Heli Repo, Pekka Pikander

Other members and collaborators of the group
Kati Talvinen, Minnamaija Lintunen, Mirva Söderström, Piia Mikkola